



US Sanction Paper

Title:	Massachusetts Rate Case	Sanction Paper #:	
Project #:	INVP 5223 Capex: S007928	Sanction Type:	Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	10/25/2018
Author:	Susan Stallard Teders / Rohit Grover	Sponsor:	Jody Allison, VP Billing and Collections Strategy
Utility Service:	IS	Project Manager:	Rohit Gover / Mike Pawlowski

1 Executive Summary

1.1 **Sanctioning Summary**

This paper requests sanction of INVP 5223 in the amount of \$0.840M with a tolerance of +/- 10% for the purposes of Full Implementation.

This sanction amount is \$0.840M broken down into:

*\$0.652M Capex
\$0.188M Opex
\$0.000M Removal*

1.2 **Project Summary**

This project is driven by National Grid's compliance with the Gas Rate Case proposals that were filed with the Massachusetts Department of Public Utilities (MA DPU) in November 2017, outlining proposed tariff changes that include rate changes and new billing fees. Specifically, National Grid's CRIS, (Customer Response Information System), billing system requires updates to existing rates, creation of new fees, bill credits and reports. The new rates will be effective October 1, 2018.

1.3 **Summary of Projects**

Project Number	Project Title	Estimate Amount (\$M)
INVP 5223	Massachusetts Rate Case	0.840
Total		0.840

1.4 **Associated Projects**

N/A



US Sanction Paper

1.5 Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Sanction Type	Potential Investment Tolerance
8/10/18	ISSC	\$0.181M	\$0.735M	Partial	+/- 25%

1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
March 2019	Project Closure Sanction

1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input checked="" type="radio"/> Mandatory <input type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input type="radio"/> Other	In November 2017, National Grid filed Gas Rate Case proposals with the Massachusetts Department of Public Utilities (MA DPU) outlining proposed tariff changes.

1.8 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

☐ Reliability
☐ Environment
☐ Health & Safety
☒ Not Policy Driven



US Sanction Paper

1.9 Complexity Level

☐ High Complexity ☒ Medium Complexity ☐ Low Complexity ☐ N/A

Complexity Score: 11

1.10 Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project:

☐ Yes ☒ No

1.11 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
IS Investment Plan FY19 - 23	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input type="radio"/> Under <input checked="" type="radio"/> NA	\$0.840M

1.12 If cost > approved Business Plan how will this be funded?

N/A



US Sanction Paper

1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
CapEx	0.000	0.652	0.000	0.000	0.000	0.000	0.000	0.652
OpEx	0.000	0.188	0.000	0.000	0.000	0.000	0.000	0.188
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.840	0.000	0.000	0.000	0.000	0.000	0.840

1.14 Key Milestones

Milestone	Target Date: (Month Year)
Start Up	May 2018
Partial Sanction	July 2018
Begin Requirements and Design	June 2018
Project Sanction	October 2018
Begin Development and Implementation	August 2018
Begin User Acceptance Testing	September 2018
Move to Production / Last Go Live	November 2018
Project Closure	March 2019

1.15 Resources, Operations and Procurement

Resource Sourcing			
Engineering & Design Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Operational Impact			
Outage impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Procurement Impact			
Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green



US Sanction Paper

1.16 Key Issues (include mitigation of Red or Amber Resources)

N/A

1.17 Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative

1.18 List References

N/A



US Sanction Paper

2 Decisions

The US IS Sanctioning Committee (ISSC) and Executive Sponsor have reviewed and approved this paper:

- (a) APPROVED this paper and the investment of \$0.840M and a tolerance of +/- 10% for the purposes of Development and Implementation.
- (b) NOTED that Mike Pawlowski is the Project Manager and has the approved financial delegation.

Signature.....Date.....

Premjith Singh
VP IS Tower Lead, Ops & Network



US Sanction Paper

3 Sanction Paper Detail

Title:	Massachusetts Rate Case	Sanction Paper #:	
Project #:	INVP 5223	Sanction Type:	Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	10/25/2018
Author:	Susan Stallard Teders / Rohit Grover	Sponsor:	Jody Allison, VP Billing and Collections Strategy
Utility Service:	IS	Project Manager:	Rohit Grover / Mike Pawlowski

3.1 *Background*

In November of 2017, National Grid filed Gas Rate Case proposals with the Massachusetts Department of Public Utilities (MA DPU) outlining proposed tariff changes.

3.2 *Drivers*

The proposals are necessary to provide National Grid with compensatory rates and the opportunity to earn a reasonable return on equity. The new rate structure will enable National Grid to provide safe and reliable gas service and continue to meet the expectations of its customers.

This investment will ensure compliance with the terms reached in the pending Settlement agreement. These billing changes need to be implemented prior to the October 1, 2018 rate case effective date.

3.3 *Project Description*

This project will deliver the required changes to the rate structure as well as a new billing process within the Customer Related Information System (CRIS) billing components.



US Sanction Paper

The proposals within the Massachusetts Rate Case are:

- Update Massachusetts Base Rates
- Update Miscellaneous Fees
- Create Paperless Bill Credit
- Create Wireless Device Installation Fee
- Create a Wireless Device Annual Fee
- Create Reports

3.4 Benefits Summary

This project will ensure the Company is compliant with the Regulatory rate order/tariff prior to the October 1, 2018 effective date.

3.5 Business and Customer Issues

There are no significant business issues beyond what has been described elsewhere.

3.6 Alternatives

Alternative 1: Do Nothing Defer:

This was not selected as this is a mandatory project for which there is no other viable alternative other than to complete the changes within CRIS.

3.7 Safety, Environmental and Project Planning Issues

There are no significant issues beyond what has been described elsewhere.



US Sanction Paper

3.8 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Risk for flux and additional scope / requirements (Issue)	3	3	3	9	9	Mitigate	Any scope will be reviewed and prioritized with PDM and business sponsors.	None.	Work with Business to defer any additional work.
2	Availability of National Grid Resources due to being shared with multiple projects. Required to perform User Acceptance Testing, Go Live Signoff and support during Go Live.	3	3	3	9	9	Avoid	Develop project development and testing schedule after discussion with Business about potential impact.	Unforeseen conflict occur due to managing multiple projects / new projects.	Work with Business management to prioritize project work.
3	Dependency on Wipro to deploy data warehouse and SAP interfaces on time.	4	4	2	16	8	Mitigate	Need to ensure weekly follow ups to remove dependencies.	Unforeseen conflict occur due to missed impact.	Work with Business management to prioritize project work.
4	Possibility of delay in batch cycle(s) due to Holding and Releasing MA billing during Oct month.	3	4	2	12	6	Mitigate	Strong communication plan needs to be circulated to involve support group and Business.	None.	Work with Business management and Support team to prioritize project work.

3.9 Permitting

N/A

3.10 Investment Recovery

3.10.1 Investment Recovery and Regulatory Implications

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

3.10.2 Customer Impact

N/A



US Sanction Paper

3.10.3 CIAC / Reimbursement

N/A

3.11 Financial Impact to National Grid

3.11.1 Cost Summary Table

					Current Planning Horizon						
Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
INVP 5223	Massachusetts Rate Case	+/- 10%	CapEx	0.000	0.652	0.000	0.000	0.000	0.000	0.000	0.652
			OpEx	0.000	0.188	0.000	0.000	0.000	0.000	0.188	
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
			Total	0.000	0.840	0.000	0.000	0.000	0.000	0.840	
Total Project Sanction			CapEx	0.000	0.652	0.000	0.000	0.000	0.000	0.000	0.652
			OpEx	0.000	0.188	0.000	0.000	0.000	0.000	0.000	0.188
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.840	0.000	0.000	0.000	0.000	0.000	0.840

3.11.2 Project Budget Summary Table

Project Costs per Business Plan

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
\$M		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
CapEx	0.000	0.652	0.000	0.000	0.000	0.000	0.000	0.652
OpEx	0.000	0.188	0.000	0.000	0.000	0.000	0.000	0.188
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.840	0.000	0.000	0.000	0.000	0.000	0.840

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
\$M		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
CapEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OpEx	0.000	(0.000)	0.000	0.000	0.000	0.000	0.000	(0.000)
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	(0.000)	0.000	0.000	0.000	0.000	0.000	(0.000)

3.11.3 Cost Assumptions

The accuracy level of estimate for each project is identified in table 3.11.1



US Sanction Paper

3.11.4 Net Present Value / Cost Benefit Analysis

This is not an NPV project.

3.11.4.1 NPV Summary Table

N/A

3.11.4.2 NPV Assumptions and Calculations

N/A

3.11.5 Additional Impacts

N/A

3.12 Statements of Support

3.12.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Jody Allison	Business Representative
PDM	Deborah Rollins	Head of PDM
BRM	Joel Semel	Relationship Manager
PDM	Michael Pawlowski	Program Delivery Director
IS Finance	Michelle Harris	Manager
IS Regulatory	Dan DeMauro	Director
DR&S	Elaine Wilson	Director
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Joe Clinchot	Director

3.12.2 Reviewers

N/A



US Sanction Paper

4 Appendices

4.1 Sanction Request Breakdown by Project

N/A

4.2 Other Appendices

4.2.1 Project Cost Breakdown

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	VOWD	FTC	FAC=VOWD+FTC	Name of Firm(s) providing
Personnel	NG Resources	0.004	0.083	0.087	
		0.287	0.381	0.668	IBM
	SDC Time & Materials	0.000	-	-	WiPro
		0.000	-	-	DXC
		0.000	-	-	Verizon
		0.000	-	-	IBM
	SDC Fixed-Price	0.000	0.029	0.029	WiPro
		0.000	-	-	DXC
		0.000	-	-	Verizon
		0.000	-	-	
	All other personnel	0.000	-	-	
TOTAL Personnel Costs		0.291	0.492	0.783	
Hardware	Purchase	0.000	-	-	
	Lease	0.000	-	-	
Software		0.000	-	-	
Risk Margin			0.020	0.020	
AFUDC		0.000	0.013	0.013	
Other		0.000	0.024	0.024	
TOTAL Costs		0.291	0.549	0.840	Should match Financial Summary Total

4.2.2 Benefiting Operating Companies

Operating Company Name	Business Area	State
Boston Gas Company	Gas Distribution	MA
Colonial Gas Company	Gas Distribution	MA



US Sanction Paper

4.2.3 IS Ongoing Operational Costs (RTB):

This project will not impact the current IS ongoing operations support costs as per the following table. These are also known as Run the Business (RTB) costs.

all figures in \$ thousands						
INV ID:	5223				Forecast Date:	06/14/18
Investment Name:	MA Gas Rate Case				Go-Live Date:	10/30/2018
Project Manager:	Rohit Grover			PDM:	Mike Pawlowski	
All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 18/19	FY 19/20	FY 20/21	FY 21/22	FY 22/23	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB						-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB						-
Business Budgeted Net Impact to RTB						-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	-	-	-	-	-	-
Business Budgeted Net Impact to RTB Variance	-	-	-	-	-	-

4.3 NPV Summary (if applicable)

N/A

4.4 Customer Outreach Plan

N/A

9/11/2019

eSanction Form - USSC - 5223-MA Rate Case Mandate Closure 2019-10-02



Closure: US Sanction Paper

Title:	MA Rate Case Mandate	Sanction Paper #:	
Project #:	INVP 5223	Sanction Type:	Closure
Capex #:	S007575		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	10/2/2019
Author:	Grover, Rohit	Sponsor(s):	McConnachie, Chris Vice President, Finance Services, F Contractor
Utility Service:	IT	Project Manager:	Cruz-Bower, Rziel

Executive Summary

Note: The latest sanction amount was M.
This paper is presented to close INVP 5223. The total spend was \$0.758M. The original sanctioned amount for this project was \$0.840M at +/- 10%.

Project Summary

This project is driven by National Grid's compliance with the Gas Rate Case proposals that were filed with the Massachusetts Department of Public Utilities (MA DPU) in November 2017, outlining proposed tariff changes that include rate changes and new billing fees. Specifically, National Grid's CRIS, (Customer Response Information System), billing system requires updates to existing rates, creation of new fees, bill credits and reports. The new rates will be effective November 1, 2018.

Schedule Variance Table

	Schedule Variance	
Project Grade - Ready to use Date		11/30/2018
Actual Ready to use Date		12/28/2018
Schedule Variance		0 year(s), 0 month(s), 28 day(s)

Cost Summary Table

Project Sanction Summary (\$M)				
	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
	Capex	0.612	0.652	0.040
	Opex	0.146	0.188	0.042
	Removal	0.000	0.000	0.000
	Total	0.758	0.840	0.082

Cost Variance Analysis

Since the new rates were going to be effected from Oct 1st, one of the requirement for MA Rate case project was to Hold MA Bills in case of delay getting Massachusetts DPU (Department of Public Utilities) approval for new/changed tariff filing. Later, DPU had issued orders to deploy new tariff starting Nov 1st which had avoided the complex Hold billing process. The approved budget initially kept for NG Business resources had not been used fully.

Final Cost by Project

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
5223	Capex	0.612	0.652	0.040
	Opex	0.146	0.188	0.042
	Removal			0.000

9/11/2019

eSanction Form - USSC - 5223-MA Rate Case Mandate Closure 2019-10-02
Information Technology Capital Investment Quarterly Report

Fourth Quarter Ended August 31, 2019
Attachment 13
Page 15 of 83

Project Sanction Summary (\$M)		Total	0.758	0.840	0.082
	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under	
Total	Capex	0.612	0.652	0.040	
	Opex	0.146	0.188	0.042	
	Removal	0.000	0.000	0.000	
	Total	0.758	0.840	0.082	

Improvements / Lessons Learned

2018-LL-567 : Complete and detailed deployment plan. Deployment plan should cover the set of migration steps, contact details of all stakeholders & their task assignment. it must be agreed and approved by all stakeholders in advance.

2018-LL-550 : Early involvement of IS group is essential to business needs and technology selection process. CRIS SME's should be aligned in Business discussions with other stakeholders in case of documenting complex requirements.

Closeout Activities

ACTIVITY	COMPLETED
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused material have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

Statement of Support

Department	Individual	Responsibilities
Business Department	McConnachie, Chris	Business Representative
Business Partner (BP)	Semel, Joel	Relationship Manager
Program Delivery Management (PDM)	Cruz-Bower, Riziel	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Detota, Brian A.	Principal Analyst
ARB Verification	Clinchot, Joseph J.	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Reviewers

Function	Individual
Regulatory	Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

9/11/2019

eSanction Form - USSC - 5223-MA Rate Case Mandate Closure 2019-10-02

Decisions

The US ITSC Sanctioning Committee and Executive Sponsor has reviewed and approved this paper.

Signature _____

Date _____

9/11/2019

eSanction Form - USSC - 5223-MA Rate Case Mandate Closure 2019-10-02

Information Technology

Appendix
N/A



US Sanction Paper

Title:	East Pulaski Energy Storage System IS Network	Sanction Paper #:	
Project #:	INVP 5241	Sanction Type:	Partial Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	9/21/2018
Author:	Douglas McCarthy	Sponsor:	Carlos Nouel, VP New Energy Solutions
Utility Service:	IS	Project Manager:	Anthony Bussard

1 **Executive Summary**

1.1 **Sanctioning Summary**

This paper requests partial sanction of INVP 5241 in the amount of \$0.222M with a tolerance of +/- 10% for the purposes of Requirements and Design.

This sanction amount is \$0.222M broken down into:

\$0.126M Capex
\$0.096M Opex
\$0.000M Removal

NOTE: The potential investment of \$0.679M with a tolerance of +/-25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements and Design.

1.2 **Project Summary**

Under NY Cases 14-M-0101/16-M-0411 "Order on Distributed System Implementation Plan Filings", issued March 9, 2017, National Grid is required to deploy two energy storage projects to be operational by December 31, 2018. This investment will deliver the design, configuration, and installation of networks in support of the larger business project (USSC-17-280, C078753) for deploying an Energy Storage System (ESS) at the East Pulaski Substation, located at 30 East Wood Rd, Pulaski, NY. The ESS requires network communications for the purposes of monitoring and control. National Grid IS will work with the business project team, the Energy Storage System (ESS) vendor, and Verizon to set up the communications network and ensure it meets National Grid architecture and security requirements.



US Sanction Paper

1.3 Summary of Projects

Project Number	Project Title	Estimate Amount (\$M)
5241	East Pulaski Energy Storage System IS Network	0.679
Total		0.679

1.4 Associated Projects

N/A

1.5 Prior Sanctioning History

N/A

1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
November 2018	Project Sanction

1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input checked="" type="radio"/> Mandatory	Cases 14-M-0101/16-M-0411
<input type="radio"/> Policy- Driven	March 9, 2017 Order on Distributed System Implementation Plan Filings
<input type="radio"/> Justified NPV	
<input type="radio"/> Other	

1.8 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

☐ Reliability ☐ Environment ☐ Health & Safety ☒ Not Policy Driven



US Sanction Paper

1.9 Complexity Level

☐ High Complexity ☐ Medium Complexity ☒ Low Complexity ☐ N/A

Complexity Score: 11

1.10 Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project:

☐ Yes ☒ No

1.11 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
IS Investment Plan FY19-23	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$0.679M

1.12 If cost > approved Business Plan how will this be funded?

Re-allocation of budget within the IS business has been managed to meet jurisdictional budgetary, statutory and regulatory requirements.

1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2018/19	Yr. 2 2019/20	Yr. 3 2020/21	Yr. 4 2021/22	Yr. 5 2022/23	Yr. 6 + 2023/24	
CapEx	0.000	0.481	0.007	0.000	0.000	0.000	0.000	0.488
OpEx	0.000	0.160	0.031	0.000	0.000	0.000	0.000	0.191
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.641	0.038	0.000	0.000	0.000	0.000	0.679



US Sanction Paper

1.14 Key Milestones

Milestone	Target Date: (Month Year)
Start Up	June 2018
Partial Sanction	September 2018
Begin Requirements and Design	September 2018
Project Sanction	November 2018
Begin Development and Implementation	November 2018
Move to Production / Last Go Live	April 2019
Project Closure	July 2019

1.15 Resources, Operations and Procurement

Resource Sourcing			
Engineering & Design Resources to be provided	<input checked="" type="checkbox"/> Internal	<input type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Operational Impact			
Outage impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Procurement Impact			
Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green



US Sanction Paper

1.16 Key Issues (include mitigation of Red or Amber Resources)

N/A

1.17 Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative

1.18 List References

N/A



US Sanction Paper

2 Decisions

The US IS Sanctioning Committee (ISSC) and Executive Sponsor have reviewed and approved this paper:

- (a) APPROVED the investment of \$0.222M and a tolerance of +/- 10% for the purposes of Requirements & Design.
- (b) NOTED the potential run-the-business (RTB) impact of \$0.010M (per annum) for 5 years.
- (c) NOTED the potential investment \$0.679M and a tolerance of +/- 25%, contingent upon submittal and approval of a Project Sanction paper following completion of requirements and design.
- (d) NOTED that Anthony Bussard has the approved financial delegation to undertake the activities stated in (a).

Signature.....Date.....

John Gilbert, Global Head of Service Delivery
Acting US CIO



US Sanction Paper

3 Sanction Paper Detail

Title:	East Pulaski Energy Storage System IS Network	Sanction Paper #:	
Project #:	INVP 5241	Sanction Type:	Partial Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	9/21/2018
Author:	Douglas McCarthy	Sponsor:	Carlos Nouel, VP New Energy Solutions
Utility Service:	IS	Project Manager:	Anthony Bussard

3.1 *Background*

As part of the Niagara Mohawk 2017 rate case, National Grid has agreed to install Energy Storage Systems (ESS - e.g.: Battery Packs) at two (2) National Grid substations in New York prior to the end of December 2018. East Pulaski Substation is one of the selected sites. National Grid made a commitment in the rate case that the Energy Storage Systems would be installed and functional within the 2018 calendar year. This investment is required to provide the networking capabilities needed to allow for the monitoring and control of the battery storage system.

3.2 *Drivers*

The East Pulaski Substation was selected for this project to increase reliability and ability to serve load. As load in this area continues to increase, the transformer bank approaches its normal rating limits. As those operating limits are exceeded, there is increased risk to the station's ability to reliably service customers. The ESS deployment project is intended to address these operating needs.

The project also addresses regulatory requirements. In its Order on Distributed System Implementation Plan (DSIP) Filings, issued on March 9, 2017, the Public Service Commission directed each utility to have at least two energy storage projects deployed and operating by December 31, 2018. This energy storage project will fulfill one of the two required to meet the requirements of the Order.

3.3 *Project Description*

The related Business project (USSC-17-280, C078753) covers the procurement, design, and implementation of the ESS system at the substation. The IS investment will deliver the requirements, design, and implementation of the IS network required to support the operation and monitoring of the ESS system. This includes providing input to the networking requirements, and attending design and review sessions to ensure the



US Sanction Paper

proposed solution will fit within the National Grid architecture and security requirements. National Grid IS will work with the Business, ESS Vendor and Verizon to successfully implement the IS Network Solution including circuit, firewall changes, cabling, and testing and implementation.

3.4 Benefits Summary

- This investment is an enabler for the deployment of an ESS at East Pulaski Substation, East Pulaski NY. Deployment of the ESS is aligned to regulatory requirements in cases 14-M-0101/ 16-M-0411.
- This project will demonstrate to the NYS regulators and the business the value of Energy Storage Systems to enhance and support the operations of substations to deliver constant supply and phase of voltage to meet demand.

3.5 Business and Customer Issues

There are no significant business issues beyond what has been described elsewhere.

3.6 Alternatives

Alternative 1: Do Nothing.

This is not an acceptable option as remote operation and monitoring of the battery storage system is a prerequisite of the deployment and safe operation of the ESS. Failure to deploy and operate the ESS will lead to regulatory non-compliance.

Alternative 2: Wired Networking Solution

This option was evaluated but would add additional time to the overall project timeline. In order to support the overall business objectives and project timeline, this option was rejected.

3.7 Safety, Environmental and Project Planning Issues

There are no significant issues beyond what has been described elsewhere.



US Sanction Paper

3.8 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Project delivery is driven by mandated timing	2	2	2	4	4	Share	Closely work with the business to identify the schedule and timing for the networking solution to identify if an interim solution is required.	Bi-weekly check points with the business.	Identify an interim solution which will allow the battery vendor to communicate with the system until the long-term solution can be implemented.
2	Vendor issues with the installation of the battery system	2	2	2	4	4	Share	Build flexibility into the schedule to handle potential delays.	Bi-weekly check points with the business and the vendor.	Compress/extend schedule as necessary and/or shift resources, if necessary, until the vendor is ready to move forward.
3	Excessive lead time for IS vendor deliverables	2	2	2	4	4	Mitigate	Work with the vendors to ensure lead times are known and managed.	Build in buffer time to the schedule to get work requests early in order to control lead time.	Escalate early on to leadership to reduce lead-time requirements.

3.9 Permitting

N/A

3.10 Investment Recovery

3.10.1 Investment Recovery and Regulatory Implications

N/A

3.10.2 Customer Impact

N/A

3.10.3 CIAC / Reimbursement

N/A



US Sanction Paper

3.11 Financial Impact to National Grid

3.11.1 Cost Summary Table

					Current Planning Horizon						
Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
5241	East Pulaski Energy Storage System IS Network	+/- 25%	CapEx	0.000	0.481	0.007	0.000	0.000	0.000	0.000	0.488
			OpEx	0.000	0.160	0.031	0.000	0.000	0.000	0.000	0.191
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.641	0.038	0.000	0.000	0.000	0.000	0.679
Total Project Sanction			CapEx	0.000	0.481	0.007	0.000	0.000	0.000	0.000	0.488
			OpEx	0.000	0.160	0.031	0.000	0.000	0.000	0.000	0.191
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.641	0.038	0.000	0.000	0.000	0.000	0.679

3.11.2 Project Budget Summary Table

Project Costs per Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
CapEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OpEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Variance (Business Plan-Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
CapEx	0.000	(0.481)	(0.007)	0.000	0.000	0.000	0.000	(0.488)
OpEx	0.000	(0.160)	(0.031)	0.000	0.000	0.000	0.000	(0.191)
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	(0.641)	(0.038)	0.000	0.000	0.000	0.000	(0.679)

3.11.3 Cost Assumptions

3.11.4 Net Present Value / Cost Benefit Analysis

3.11.4.1 NPV Summary Table

N/A

3.11.4.2 NPV Assumptions and Calculations

N/A



US Sanction Paper

3.11.5 Additional Impacts

N/A

3.12 Statements of Support

3.12.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Carlos Nouel	Business Representative
PDM	Deb Rollins	Head of PDM
BRM	Premjith Singh	VP IS Tower Lead Ops & Network
PDM	Michelle Mcnaught	Program Delivery Director
IS Finance	Michelle Harris	Manager
IS Regulatory	Tom Gill	Manager
DR&S	Elaine Wilson	Director
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Svetlana Lyba	Director

3.12.2 Reviewers

N/A

4 Appendices

4.1 Sanction Request Breakdown by Project

\$M	5241
CapEx	0.126
OpEx	0.096
Removal	
Total	0.222



US Sanction Paper

4.2 Other Appendices

4.2.1 Project Cost Breakdown

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	VOWD	FTC	FAC=VOWD+FTC	Name of Firm(s) providing
Personnel	NG Resources	0.000	0.130	0.130	
	SDC Time & Materials	0.000	-	-	IBM
		0.000	0.060	0.060	WiPro
		0.000	0.040	0.040	DXC
		0.000	0.040	0.040	Verizon
		0.000	-	-	IBM
	SDC Fixed-Price	0.000	-	-	WiPro
		0.000	-	-	DXC
		0.000	-	-	Verizon
	All other personnel	0.000	0.121	0.121	
	TOTAL Personnel Costs	-	0.391	0.391	
Hardware	Purchase	0.000	0.042	0.042	
	Lease	0.000	0.058	0.058	
Software		0.000	-	-	
Risk Margin			0.106	0.106	
AFUDC		0.000	0.014	0.014	
Other		0.000	0.068	0.068	
TOTAL Costs		-	0.679	0.679	Should match Financial Summary Total

4.2.2 Benefiting Operating Companies

Operating Company Name	Business Area	State
Niagara Mohawk Power Corp.	Electric Distribution	NY



US Sanction Paper

4.2.3 IS Ongoing Operational Costs (RTB):

This project will increase IS ongoing operations support costs as per the following table. These are also known as Run the Business (RTB) costs.

all figures in \$ thousands						
INV ID:	5241				Forecast Date:	08/02/18
Investment Name:	E. Pulaski BESS				Go-Live Date:	4/2/2019
Project Manager:	Anthony Bussard			PDM:	Michelle McNaught	
All figures in \$ thousands	Yr. 1 FY 19/20	Yr. 2 FY 20/21	Yr. 3 FY 21/22	Yr. 4 FY 22/23	Yr. 5 FY 23/24	Total
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB						-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB						-
Business Budgeted Net Impact to RTB						-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	9.6	9.6	9.6	9.6	9.6	48.0
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	(9.6)	(9.6)	(9.6)	(9.6)	(9.6)	(48.0)
Business Budgeted Net Impact to RTB Variance	-	-	-	-	-	-

4.3 NPV Summary (if applicable)

N/A

4.4 Customer Outreach Plan

N/A



US Sanction Paper

Title:	Buffalo Energy Storage System IS Network	Sanction Paper #:	
Project #:	INVP 5242	Sanction Type:	Partial Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	9/21/2018
Author:	Douglas McCarthy	Sponsor:	Carlos Nouel, VP New Energy Solutions
Utility Service:	IS	Project Manager:	Anthony Bussard

1 **Executive Summary**

1.1 **Sanctioning Summary**

This paper requests partial sanction of INVP 5242 in the amount of \$0.310M with a tolerance of +/- 10% for the purposes of Requirements and Design.

This sanction amount is \$0.310M broken down into:

\$0.230M Capex
\$0.080M Opex
\$0.000M Removal

NOTE: The potential investment of \$0.779M with a tolerance of +/- 25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements and Design.

1.2 **Project Summary**

Under NY Cases 14-M-0101/16-M-0411 "Order on Distributed System Implementation Plan Filings", issued March 9, 2017, National Grid is required to deploy two energy storage projects to be operational by December 31, 2018. This investment will deliver the design, configuration, and installation of networks in support of the larger business project (USSC-17-279, C078752) for deploying an Energy Storage System (ESS) at the Kenmore substation located at 346 Kenmore Avenue, Buffalo NY. The ESS requires network communications for the purposes of monitoring and control. National Grid IS will work with the business project team, the Energy Storage System (ESS) vendor, and Verizon to set up the communications network and ensure it meets National Grid architecture and security requirements.



US Sanction Paper

1.3 Summary of Projects

Project Number	Project Title	Estimate Amount (\$M)
5242	Buffalo Energy Storage System IS Network	0.779
Total		0.779

1.4 Associated Projects

N/A

1.5 Prior Sanctioning History

N/A

1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
November 2018	Project Sanction

1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input checked="" type="radio"/> Mandatory	Cases 14-M-0101/16-M-0411
<input type="radio"/> Policy- Driven	March 9, 2017 Order on Distributed System Implementation Plan Filings
<input type="radio"/> Justified NPV	
<input type="radio"/> Other	



US Sanction Paper

1.8 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

☐ Reliability
☐ Environment
☐ Health & Safety
☒ Not Policy Driven

1.9 Complexity Level

☐ High Complexity
☐ Medium Complexity
☒ Low Complexity
☐ N/A

Complexity Score: 11

1.10 Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project:

☐ Yes
☒ No

1.11 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
IS Investment Plan FY19-23	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$0.779M

1.12 If cost > approved Business Plan how will this be funded?

Re-allocation of budget within the IS business has been managed to meet jurisdictional budgetary, statutory and regulatory requirements.



US Sanction Paper

1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
CapEx	0.000	0.430	0.175	0.000	0.000	0.000	0.000	0.604
OpEx	0.000	0.143	0.031	0.000	0.000	0.000	0.000	0.174
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.572	0.206	0.000	0.000	0.000	0.000	0.779

1.14 Key Milestones

Milestone	Target Date: (Month Year)
Start Up	June 2018
Partial Sanction	September 2018
Begin Requirements and Design	September 2018
Project Sanction	November 2018
Begin Development and Implementation	November 2018
Move to Production / Last Go Live	June 2019
Project Closure	September 2019

1.15 Resources, Operations and Procurement

Resource Sourcing			
Engineering & Design Resources to be provided	<input checked="" type="checkbox"/> Internal	<input type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Operational Impact			
Outage impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Procurement Impact			
Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green

US Sanction Paper





US Sanction Paper

1.16 Key Issues (include mitigation of Red or Amber Resources)

N/A

1.17 Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative

1.18 List References

N/A



US Sanction Paper

2 Decisions

The US IS Sanctioning Committee (ISSC) and Executive Sponsor have reviewed and approved this paper:

- (a) APPROVED the investment of \$0.310M and a tolerance of +/- 10% for the purposes of Requirements & Design.
- (b) NOTED the potential run-the-business (RTB) impact of \$0.031M (per annum) for 5 years.
- (c) NOTED the potential investment \$0.779M and a tolerance of +/- 25%, contingent upon submittal and approval of a Project Sanction paper following completion of requirements and design.
- (d) NOTED that Anthony Bussard has the approved financial delegation to undertake the activities stated in (a).

Signature.....Date.....

John Gilbert, Global Head of Service Delivery
Acting US CIO



US Sanction Paper

3 Sanction Paper Detail

Title:	Buffalo Energy Storage System IS Network	Sanction Paper #:	
Project #:	INVP 5242	Sanction Type:	Partial Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	9/21/2018
Author:	Douglas McCarthy	Sponsor:	Carlos Nouel, VP New Energy Solutions
Utility Service:	IS	Project Manager:	Anthony Bussard

3.1 *Background*

As part of the Niagara Mohawk 2017 rate case, National Grid has agreed to install Energy Storage Systems (ESS - e.g.: Battery Packs) at two (2) National Grid substations in New York prior to the end of December 2018. The Kenmore Substation located at 346 Kenmore Avenue, Buffalo NY, is one of the selected sites. National Grid made a commitment in the rate case that the Energy Storage Systems would be installed and functional within the 2018 calendar year. This investment is required to provide the networking capabilities needed to allow for the monitoring and control of the battery storage system.

3.2 *Drivers*

The Kenmore Substation was selected for this project to increase reliability and ability to serve load. As load in this area continues to increase, the transformer bank approaches its normal rating limits. As those operating limits are exceeded, there is increased risk to the station's ability to reliably service customers. The ESS deployment project is intended to address these operating needs.

The project also addresses regulatory requirements. In its Order on Distributed System Implementation Plan (DSIP) Filings, issued on March 9, 2017, the Public Service Commission directed each utility to have at least two energy storage projects deployed and operating by December 31, 2018. This energy storage project will fulfill one of the two required to meet the requirements of the Order.

3.3 *Project Description*

The related Business project Kenmore Station 22 Battery Storage (USSC-17-279, C078752) covers the procurement, design, and implementation of the ESS system at the substation. The IS investment will deliver the requirements, design, and implementation of the IS network required to support the operation and monitoring of



US Sanction Paper

the ESS system. This includes providing input to the networking requirements, and attending design and review sessions to ensure the proposed solution will fit within the National Grid architecture and security requirements. National Grid IS will work with the Business, ESS Vendor, and Verizon to successfully implement the IS Network Solution including circuit, firewall changes, cabling, and testing and implementation.

3.4 Benefits Summary

- This investment is an enabler for the deployment of an ESS at Kenmore Substation located at 346 Kenmore Avenue, Buffalo NY. Deployment of the ESS is aligned to regulatory requirements in cases 14-M-0101/ 16-M-0411.
- This project will demonstrate to the NYS regulators and the business the value of Energy Storage Systems to enhance and support the operations of substations to deliver constant supply and phase of voltage to meet demand.

3.5 Business and Customer Issues

There are no significant business issues beyond what has been described elsewhere.

3.6 Alternatives

Alternative 1: Do Nothing.

This is not an acceptable option as remote operation and monitoring of the battery storage system is a prerequisite of the deployment and safe operation of the ESS. Failure to deploy and operate the ESS will lead to regulatory non-compliance.

Alternative 2: Wireless networking solution.

This option was evaluated but would not support the vendor requirements for battery monitoring due to limitations of network bandwidth. In order to support the overall business requirements, this option was rejected.

3.7 Safety, Environmental and Project Planning Issues

There are no significant issues beyond what has been described elsewhere.



US Sanction Paper

3.8 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Project delivery is driven by mandated timing	2	2	2	4	4	Share	Closely work with the business to identify the schedule and timing for the networking solution to identify if an interim solution is required.	Bi-weekly check points with the business.	Identify an interim solution which will allow the battery vendor to communicate with the system until the long-term solution can be implemented.
2	Vendor issues with the installation of the battery system	2	2	2	4	4	Share	Build flexibility into the schedule to handle potential delays.	Bi-weekly check points with the business and the vendor.	Compress/extend schedule as necessary and/or shift resources, if necessary, until the vendor is ready to move forward.
3	Excessive lead time for IS vendor deliverables	2	2	2	4	4	Mitigate	Work with the vendors to ensure lead times are known and managed.	Build in buffer time to the schedule to get work requests early in order to control lead time.	Escalate early on to leadership to reduce lead-time requirements.

3.9 Permitting

N/A

3.10 Investment Recovery

3.10.1 Investment Recovery and Regulatory Implications

N/A

3.10.2 Customer Impact

N/A

3.10.3 CIAC / Reimbursement

N/A



US Sanction Paper

3.11 Financial Impact to National Grid

3.11.1 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
					2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
5242	Buffalo Energy Storage System IS Network	+/- 25%	CapEx	0.000	0.430	0.175	0.000	0.000	0.000	0.000	0.604
			OpEx	0.000	0.143	0.031	0.000	0.000	0.000	0.000	0.174
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.572	0.206	0.000	0.000	0.000	0.000	0.779
			CapEx	0.000	0.430	0.175	0.000	0.000	0.000	0.000	0.604
Total Project Sanction			OpEx	0.000	0.143	0.031	0.000	0.000	0.000	0.000	0.174
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.572	0.206	0.000	0.000	0.000	0.000	0.779

3.11.2 Project Budget Summary Table

Project Costs per Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
CapEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OpEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Variance (Business Plan-Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
CapEx	0.000	(0.430)	(0.175)	0.000	0.000	0.000	0.000	(0.604)
OpEx	0.000	(0.143)	(0.031)	0.000	0.000	0.000	0.000	(0.174)
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	(0.572)	(0.206)	0.000	0.000	0.000	0.000	(0.779)

3.11.3 Cost Assumptions

3.11.4 Net Present Value / Cost Benefit Analysis

3.11.4.1 NPV Summary Table

N/A

3.11.4.2 NPV Assumptions and Calculations

N/A



US Sanction Paper

3.11.5 Additional Impacts

N/A

3.12 Statements of Support

3.12.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Carlos Nouel	Business Representative
PDM	Deb Rollins	Head of PDM
BRM	Premjith Singh	VP IS Tower Lead Ops & Network
PDM	Michelle Mcnaught	Program Delivery Director
IS Finance	Michelle Harris	Manager
IS Regulatory	Tom Gill	Manager
DR&S	Elaine Wilson	Director
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Svetlana Lyba	Director

3.12.2 Reviewers

N/A

4 Appendices

4.1 Sanction Request Breakdown by Project

\$M	5242
CapEx	0.230
OpEx	0.080
Removal	
Total	0.310

4.2 Other Appendices



US Sanction Paper

4.2.1 Project Cost Breakdown

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	VOWD	FTC	FAC=VOWD+FTC	Name of Firm(s) providing
Personnel	NG Resources	0.000	0.154	0.154	
	SDC Time & Materials	0.000	-	-	IBM
		0.000	-	-	WiPro
		0.000	0.040	0.040	DXC
		0.000	0.040	0.040	Verizon
	SDC Fixed-Price	0.000	-	-	IBM
		0.000	-	-	WiPro
		0.000	-	-	DXC
		0.000	-	-	Verizon
	All other personnel	0.000	0.131	0.131	
	TOTAL Personnel Costs	-	0.365	0.365	
Hardware	Purchase	0.000	0.148	0.148	
	Lease	0.000	0.058	0.058	
Software		0.000	-	-	
Risk Margin			0.120	0.120	
AFUDC		0.000	0.021	0.021	
Other		0.000	0.067	0.067	
TOTAL Costs		-	0.779	0.779	Should match Financial Summary Total

4.2.2 Benefiting Operating Companies

Operating Company Name	Business Area	State
Niagara Mohawk Power Corp.	Electric Distribution	NY



US Sanction Paper

4.2.3 IS Ongoing Operational Costs (RTB):

This project will increase IS ongoing operations support costs as per the following table. These are also known as Run the Business (RTB) costs.

all figures in \$ thousands						
INV ID:	5242			Forecast Date:	08/02/18	
Investment Name:	Kenmore BESS			Go-Live Date:	5/21/2019	
Project Manager:	Anthony Bussard			PDM:	Michelle McNaught	
All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB						-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB						-
Business Budgeted Net Impact to RTB						-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	30.8	30.8	30.8	30.8	30.8	154.2
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	(30.8)	(30.8)	(30.8)	(30.8)	(30.8)	(154.2)
Business Budgeted Net Impact to RTB Variance	-	-	-	-	-	-

4.3 NPV Summary (if applicable)

N/A

4.4 Customer Outreach Plan

N/A



US Sanction Paper

Title:	Rubber Good Testing/Tracking System Replacement	Sanction Paper #:	
Project #:	INVP 5260	Sanction Type:	Partial Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	12/21/2018
Author:	Martin McDermott	Sponsor:	Michael McCallan VP Emergency Planning and Electric Operations Support
Utility Service:	IT	Project Manager:	Lakmal Egodawatte

1 **Executive Summary**

1.1 **Sanctioning Summary**

This paper requests partial sanction of INVP 5260 in the amount of \$0.405M with a tolerance of +/- 10% for the purposes of Requirements and Design.

This sanction amount is \$0.405M broken down into:

\$0.277M Capex
\$0.128M Opex
\$0.000M Removal

NOTE the potential investment of \$0.689M with a tolerance of +/- 25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements and Design.

1.2 **Project Summary**

The Rubber Goods Testing Lab is in need of a new solution to assist in the testing and tracking of the electric operations rubber goods (gloves, sleeves, aprons) to ensure they will protect the electric field employee. This investment will replace the current Figmore Software-as-a-Service (SaaS) Rubber Goods Testing/Tracking solution with a vendor supported purchased software solution which will be hosted within the National Grid Azure cloud. Covered within this investment are the software purchase, installation, data conversion, testing, training and implementation of the new solution.



US Sanction Paper

1.3 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
INVP 5260	Project Type	Rubber Goods Testing/Tracking System Repla	0.689
Total			0.689

1.4 Associated Projects

Project Number	Project Title	Estimate Amount (\$M)
INVP 5269	Rubber Goods System Replacement F&A	0.058
Total		0.058

1.5 Prior Sanctioning History

N/A

1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
April 2019	Project Sanction

1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory <input checked="" type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input type="radio"/> Other	National Grid Safety is required to supply electric field employees with fully tested Electric Hazard Safety gear to protect them from electric hazard.



US Sanction Paper

1.8 Asset Management Risk Score

Asset Management Risk Score: 39

Primary Risk Score Driver: (Policy Driven Projects Only)

☐ Reliability ☐ Environment ☒ Health & Safety ☐ Not Policy Driven

1.9 Complexity Level

☐ High Complexity ☐ Medium Complexity ☒ Low Complexity ☐ N/A

Complexity Score: 16

1.10 Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project:

☐ Yes ☒ No

1.11 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
IS Investment Plan FY19 - 23	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$0.689M

1.12 If cost > approved Business Plan how will this be funded?

Re-allocation of budget within the IT business has been managed to meet jurisdictional budgetary, statutory and regulatory requirements.



US Sanction Paper

1.13 Current Planning Horizon

		Current Planning Horizon						
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
\$M	Prior Yrs	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
CapEx	0.000	0.212	0.318	0.000	0.000	0.000	0.000	0.530
OpEx	0.000	0.106	0.053	0.000	0.000	0.000	0.000	0.159
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.318	0.371	0.000	0.000	0.000	0.000	0.689

1.14 Key Milestones

Milestone	Target Date: (Month Year)
Start Up	October 2018
Partial Sanction	December 2018
Begin Requirements and Design	January 2019
Project Sanction	April 2019
Begin Development and Implementation	April 2019
Begin User Acceptance Testing	June 2019
Move to Production / Last Go Live	July 2019
Project Closure	October 2019

1.15 Resources, Operations and Procurement

Resource Sourcing			
Engineering & Design Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Operational Impact			
Outage impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green



US Sanction Paper

Procurement Impact			
Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green

1.16 Key Issues (include mitigation of Red or Amber Resources)

1	None
2	
3	

1.17 Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative

1.18 List References

1	None
2	
3	



US Sanction Paper

2 Decisions

The US IT Sanctioning Committee (ISSC) and Executive Sponsor have reviewed and approved this paper:

- (a) APPROVED the investment of \$0.405M and a tolerance of +/- 10% for the purposes of Requirements and Design.
- (b) NOTED the potential run-the-business (RTB) impact of \$ 0.074M (per annum) for 5 years.
- (c) NOTED the potential investment \$ 0.689M and a tolerance of +/- 25%, contingent upon submittal and approval of a Project Sanction paper following completion of requirements and design.
- (d) NOTED that Lakmal Egodawatte has the approved financial delegation to undertake the activities stated in (a).

Signature.....Date.....

Premjith Singh

VP IT Tower Lead – Gas Business Partner



US Sanction Paper

3 Sanction Paper Detail

Title:	Rubber Good Testing/Tracking System Replacement	Sanction Paper #:	
Project #:	INVP 5260	Sanction Type:	Partial Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	12/21/2018
Author:	Martin McDermott	Sponsor:	Michael McCallan VP Emergency Planning and Electric Operations Support
Utility Service:	IT	Project Manager:	Lakmal Egodawatte

3.1 **Background**

National Grid currently utilizes a vendor Software-as-a-Service (SaaS) solution within the Rubber Goods Testing Lab to track and record test results on rubber goods (gloves, sleeves, aprons and blankets). Goods which do not pass testing must be marked as such and discarded, likewise equipment which pass the tests are also noted and returned to the field for continued use. It is imperative that the goods be tracked and their tests results be recorded to reduce the risk of electrical hazard.

The current vendor Figmore has notified National Grid that they are leaving the SaaS marketplace and will no longer be providing the service in the future. The existing contract for the service expired October 31, 2018. The vendor has offered to continue the SaaS contract at the current rate until December 31, 2018 and at a significantly higher rate for up to a year as we transition to a new solution.

A Feasibility & Analysis (F&A) study was undertaken this past summer to determine the best solution for the continued testing and tracking of the rubber goods which would meet the needs of the Test Lab as well as support the concerns of various stakeholders. The study selected a replacement product, determined the cost and time line to complete the transition.



US Sanction Paper

3.2 Drivers

All of National Grid testing and tracking information is stored within the Vendors SaaS solution; once this solution is no longer available National Grid will lose access to its' information. The vendor as part of the contract will provide National Grid's data to us upon termination of the agreement so that it can be migrated to the new solution. An automated solution is required to store, report and continue to perform the functions to support testing and tracking of rubber goods in order to ensure the safety of National Grid's field workers.

3.3 Project Description

This project will transition National Grid's Rubber Goods Testing Lab from a SaaS solution, which is currently used to record test results and track rubber goods, over to a new vendor supported purchased solution. The software and data will be hosted within the National Grid secure Azure Cloud environment. As part of the project the following software application, installation and transition services will be procured from the new vendor:

- a secure Azure Cloud environment will be set-up to support both a production and test instance within the National Grid cloud;
- business requirements will be confirmed;
- required modifications/enhancements will be added to the base product;
- the application will be installed to support both environments
- the current SaaS data will be converted into the new applications database; and
- testing and training will occur to ensure a smooth transition;

Both the new vendor and Figmore the existing SaaS vendor have agreed to provide transition services to assist in the conversion of the data. A support contract will be entered into with the new application vendor to support the application within National Grid's Azure cloud environment.

3.4 Benefits Summary

Type	Benefit	Description
Direct	Rubber Testing Lab will have a fully supported application for tracking and testing Rubber Good	The new application is utilized by several utilities and fully supported by the vendor, updates and enhancements take place on a regular basis which National Grid will be entitled to as part of the support contract.
Direct	Risk reduction and enhanced control	With a fully licensed application and the data being housed within National Grid controlled infrastructure there will be reduced reliance on a vendor's business plan to continue operation.



US Sanction Paper

Direct	Retention of historical data for compliance	As part of this investment the old and new vendor will work together to ensure a proper and complete transition of National Grid current and historical testing and tracking data.
--------	---	--

3.5 Business and Customer Issues

There are no significant business issues beyond what has been described elsewhere.

3.6 Alternatives

Alternative 1: Do nothing - Rejected

The contract with the current SaaS vendor Figmore expired on October 31, 2018; although Figmore has agreed to continue support at the current rate for two more months, ending December 31, 2018. They have made it clear they are exiting the SaaS business and will only provide an additional window for National Grid's migration off the Figmore system. To this end Figmore has agreed to an additional year of use to allow transition off of their platform, but at a rate which is more than double the current yearly SaaS cost. The new agreement ends December 31, 2019, and if National Grid finds they cannot exit the SaaS environment by that date the rate would again significantly increase, assuming Figmore would be in a position to enter into a new agreement to extend service.

Alternative 2: Delay the investment - Rejected

Figmore has already notified National Grid that they are terminating the SaaS offering but have agreed to a new one year agreement for transitional use of the SaaS system. The agreement allows for a pro-rated monthly amount returned to National Grid for each full month it is off the SaaS environment prior to December 31, 2019, with a 90-day notice prior to the final exit date. Hence the investment should not be delayed and every effort should be made to expedite the investment since staying on Figmore SaaS is not a viable option.

Alternative 3: Alternate solution or Manual tracking of Rubber Goods - Rejected

Testing, maintenance and tracking of Rubber Goods is a mandated activity to ensure electric field crews are provided proper safety equipment. The sheer volume of rubber goods at National Grid, the need to perform regularly schedule testing, properly recording results and maintaining history would make a manual system hard to implement. Additional labor to support manual tracking would be cost prohibitive and could open up the process to increased human error. An F&A study undertaken prior to this investment determined the most appropriate solution was the one proposed in this paper.



US Sanction Paper

3.7 Safety, Environmental and Project Planning Issues

There are no significant issues beyond what has been described elsewhere.

3.8 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Limited availability of Project Resources	2	3	3	6	6	Mitigate	Include the support vendor early on in the project to add additional resources and ease transition of support from Figmore to new vendor.	Closely monitor the project and leverage the Business as required for knowledge transfer and assistance.	Contract support vendor for additional resources to add in application review and transition from Figmore.
2	Documentation may be limited or incomplete	2	2	2	4	4	Transfer	Detail Documentation requirements and expectations strongly within in contract. Make the delivery of acceptable documentation as a part of a payable task.	Hold documentation review sessions ensuring documentation meets National Grid standards.	Define corrective action to documentation the vendor must take to ensure compliance. Hold back payment for the documentation task until acceptable delivery is made.
3	Support Vendor lack of technical knowledge	2	2	2	4	4	Share	As part of the support contract ensure vendor has the resources to fully support the product including the application, the database and Azure environment.	Define SLA and tie support payments to expected performance.	Enforce the support contract and ensure the vendor places proper resources on the support.

3.9 Permitting

N/A

3.10 Investment Recovery

3.10.1 Investment Recovery and Regulatory Implications

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

3.10.2 Customer Impact

N/A

3.10.3 CIAC / Reimbursement

N/A



US Sanction Paper

3.11 Financial Impact to National Grid

3.11.1 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
					2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
INVP 5260	Rubber Goods Testing/Tracking System Replacement	Est Lvl (+/- 10%)	CapEx	0.000	0.212	0.318	0.000	0.000	0.000	0.000	0.530
			OpEx	0.000	0.106	0.053	0.000	0.000	0.000	0.000	0.159
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.318	0.371	0.000	0.000	0.000	0.000	0.689

3.11.2 Project Budget Summary Table

Project Costs per Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon						
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Total
CapEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OpEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Variance (Business Plan-Project Estimate)

		Current Planning Horizon							
		Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		(Actual)	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Total
\$M									
CapEx	0.000	(0.212)	(0.318)	0.000	0.000	0.000	0.000	(0.530)	
OpEx	0.000	(0.106)	(0.053)	0.000	0.000	0.000	0.000	(0.159)	
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Total Cost in Bus. Plan	0.000	(0.318)	(0.371)	0.000	0.000	0.000	0.000	(0.689)	

3.11.3 Cost Assumptions

- This investment will be managed by a National Grid Project Manager.
- Project will utilize internal National Grid Resources, external consultants, Azure Cloud and IBM technical resources
- Costs of license and services have been confirmed
- The accuracy level of estimate for each project is identified in table 3.11.1

3.11.4 Net Present Value / Cost Benefit Analysis

This is not an NPV project.



US Sanction Paper

3.11.5 Additional Impacts

N/A

3.12 Statements of Support

3.12.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Larry Durante	Business Representative
Business Partner (BP)	Robert Lorkiewicz	BP Electric
Program Delivery Management (PDM)	Sally Seltzer	PDM
Program Delivery Management (PDM)	Sally Seltzer	Program Delivery Director
IT Finance	Michelle Harris	Manager
IT Regulatory	Tom Gill	Manager
Digital Risk and Security (DR&S)	Peter Shattuck	Manager
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Svetlana Lyba	Director

4 Appendices

4.1 Sanction Request Breakdown by Project

\$M	INVP 5260	Total
CapEx	0.530	0.530
OpEx	0.159	0.159
Removal		0.000
Total	0.689	0.689



US Sanction Paper

4.2 Other Appendices

4.2.1 Project Cost Breakdown

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources		0.218	0.218	
			-	-	IBM
	SDC Time & Materials		0.067	0.067	WiPro
			0.016	0.016	DXC
			-	-	Verizon
	SDC Fixed-Price		-	-	IBM
			-	-	WiPro
			-	-	DXC
			-	-	Verizon
	All other personnel		0.128	0.128	
	TOTAL Personnel Costs	-	0.429	0.429	
Hardware	Purchase		-	-	
	Lease		-	-	
Software			0.148	0.148	Tesco, Microsoft
Risk Margin			0.074	0.074	
AFUDC			0.016	0.016	
Other			0.021	0.021	
TOTAL Costs		-	0.688	0.688	

4.2.2 Benefiting Operating Companies

This investment will only benefit Electric Operating companies (Distribution and Transmission) which utilize the Rubber Goods Testing Lab.

Benefiting Operating Companies Table:

Operating Company Name	Business Area	State
Niagara Mohawk Power – Electric Dist	Electric Distribution	NY
Massachusetts Electric Company	Electric Distribution	MA
Narragansett Electric Company	Electric Distribution	RI
Nantucket Electric Company	Electric Distribution	MA
Niagara Mohawk Power - Transmission	Transmission	NY
Massachusetts Electric Company - Transmission	Transmission	MA
Narragansett Electric Company – Transmission	Transmission	RI
New England Power Company - Transmission	Transmission	MA, NH, RI, VT



US Sanction Paper

4.2.3 IS Ongoing Operational Costs (RTB):

This project will increase IS ongoing operations support costs as per the following table. These are also known as Run the Business (RTB) costs.

The increase in IS RTB costs is caused by moving from a Business funded SaaS solution, to a purchased software packaged hosted within National Grid's Azure cloud along with the cost of yearly vendor support.

all figures in \$ thousands						
INV ID:	5260				Date RTB Last Forecasted	12/10/2018
Investment Name:	Rubber Good Replacement					
Project Manager:	Lakmal Egodawatte			PDM:	William Myles	
All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB						-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB						-
Business Budgeted Net Impact to RTB						-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	63.5	74.0	74.0	74.0	74.0	359.5
Business Funded Net Impact to RTB Forecasted at Go-Live	-	(115.0)	(115.0)	(115.0)	(115.0)	(460.0)
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	(63.5)	(74.0)	(74.0)	(74.0)	(74.0)	(359.5)
Business Budgeted Net Impact to RTB Variance	-	115.0	115.0	115.0	115.0	460.0

4.3 NPV Summary (if applicable)

N/A

4.4 Customer Outreach Plan

N/A



US Sanction Paper

Title:	Identity and Access Management - Business Change	Sanction Paper #:	USSC-18-311
Project #:	INVP 5278 Capex: S07966	Sanction Type:	Partial Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	10/10/2018
Author:	Nicolette Brown / Richard Pedley	Sponsor:	Andi Karaboutis - Chief Information and Digital Officer
Utility Service:	IS	Project Manager:	Richard Pedley

1 Executive Summary

1.1 **Sanctioning Summary**

This paper requests partial sanction of INVP 5278 in the amount of \$1.712M with a tolerance of +/- 10% for the purposes of Requirement and Design.

This sanction amount is \$1.712M broken down into:
\$0.880M Capex
\$0.831M Opex
\$0.000M Removal

NOTE the potential investment of \$9.526M with a tolerance of +/- 25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements and Design.

1.2 **Project Summary**

Identity and Access Management (IAM) is the security discipline that enables the right individuals to access the right IT resources and physical facilities, at the right times for the right reasons.

National Grid is obliged by the regulator to undertake an annual independent external audit to ensure compliance with the regulators policies and standards. In 2017 Deloitte was appointed as National Grid's external auditor. In 2018, Deloitte presented the audit report to National Grid which identified control deficiencies and enabled National Grid to develop action plans and mitigations to address them. Within National Grid's Identity Access Management (IAM) several deficiencies were identified and tactical initiatives undertaken to meet the audit requirement.



US Sanction Paper

The IAM - Business Change Project will deliver a series of process, technical and service changes to resolve the causes of the identified deficiencies. The following three activities will be completed under this partial sanction:

- **Start Up - Insight and Discovery**

- Review the audit findings in respect of Starter, Mover and Leaver (SML) processes to inform requirements development and solution design
- Identify initial project scope and validate with stakeholders
- Capture issues and desired outcomes
- Undertake analysis of industry standards and best practice and assess National Grid maturity against best practice
- Perform impact analysis against in flight projects
- Document the current capability via the Process Excellence Process (PEX)

- **Requirements and Design**

Requirements

- Document high level requirements to resolve the identified IAM issues
- Document benefits and measures associated with each change in capability

Design

- Design a Target Operating Model (TOM) and associated delivery capability
- Identify the people, processes, technology and facilities required to deliver the TOM
- Confirm which IAM service delivery elements will migrate to the TOM
- Develop high-level approach to Role Based Access Controls (RBAC)
- Define the role and high level design of the Immutable Identity Capability
- Design a Business Change program (BCP) to ensure the IAM–BCP project changes are understood and adopted by the business

- **Begin Development**

- IAM policies, standards and procedures
- TOM and organizational structure
- Access Control Group (ACG) structure, scope, resourcing, training plan, tooling requirements internal processes, monitoring and reporting processes, take on service templates and testing
- Undertake a process refresh to standardize and optimize IAM processes
- Support the National Grid Businesses to fully define and design RBAC model and implementation plan
- Develop the Immutable Identity capability and integrate into the wider National Grid estate



US Sanction Paper

1.3 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
INVP5278		Identity & Access Management (IAM) – Business	9.526
Total			9.526

1.4 Associated Projects

N/A

1.5 Prior Sanctioning History

N/A

1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
March 2019	Sanction



US Sanction Paper

1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory <input checked="" type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input type="radio"/> Other	<p>There is an external audit requirement to improve National Grid's access controls to data, assets and devices, to ensure the right individuals to access the right resources at the right times for the right reasons.</p> <p>This project will address the audit item "2155 - Starters, Movers, and Leavers (SML) process review" which identified the following five key topics;</p> <ol style="list-style-type: none"> 1. Fragmented and Decentralized end to end SML processes 2. Approval Documentation for Starters 3. Movers Access 4. Leavers Access 5. KPI Reporting

1.8 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

☒ Reliability
☐ Environment
☐ Health & Safety
☐ Not Policy Driven

1.9 Complexity Level

☐ High Complexity
☒ Medium Complexity
☐ Low Complexity
☐ N/A

Complexity Score: 20



US Sanction Paper

1.10 Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project:

☐ Yes ☒ No

1.11 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
IS Investment Plan FY19-23	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$9.526M

1.12 If cost > approved Business Plan how will this be funded?

Re-allocation of budget within the IS business has been managed to meet jurisdictional budgetary, statutory and regulatory requirements.

1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2018/19	Yr. 2 2019/20	Yr. 3 2020/21	Yr. 4 2021/22	Yr. 5 2022/23	Yr. 6 + 2023/24	
CapEx	0.000	0.880	4.075	0.898	0.000	0.000	0.000	5.854
OpEx	0.000	0.831	2.279	0.562	0.000	0.000	0.000	3.673
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	1.712	6.354	1.460	0.000	0.000	0.000	9.526



US Sanction Paper

1.14 Key Milestones

Milestone	Target Date: (Month Year)
Start Up	April 2018
Partial Sanction	October 2018
Begin Requirements and Design	October 2018
Begin Development of Core Capability	December 2018
Project Sanction	March 2019
Development and Implementation	March 2019
Move to Production / Last Go Live	August 2020
Project Closure	November 2020

1.15 Resources, Operations and Procurement

Resource Sourcing			
Engineering & Design Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input checked="" type="radio"/> Amber	<input type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Operational Impact			
Outage impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Procurement Impact			
Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green



US Sanction Paper

1.16 Key Issues (include mitigation of Red or Amber Resources)

1	<p>Available Resources – Sufficient internal and external resources are not in place to deliver the project.</p> <p>Mitigation - The project will utilise contract resources as to meet the immediate needs of the project.</p>
---	---

1.17 Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative

1.18 List References

N/A



US Sanction Paper

2 Decisions

The US Sanctioning Committee (USSC) at a meeting held on 10/10/2018:

- (a) APPROVED the investment of \$1.712M and a tolerance of +/- 10 % for the purposes of Requirements and Design.
- (b) NOTED the potential investment \$9.526M and a tolerance of +/- 25%, contingent upon submittal and approval of a Project Sanction paper following completion of requirements and design.
- (c) NOTE that Richard Pedley is the Project Manager and has the approved financial delegation.

Signature.....Date.....
David H. Campbell, Vice President ServCo Business Partnering, USSC Chair



US Sanction Paper

3 Sanction Paper Detail

Title:	Identity & Access Management (IAM) – Business Change	Sanction Paper #:	USSC-18-311
Project #:	INVP 5278 Capex: S07966	Sanction Type:	Partial Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	10/10/2018
Author:	Nicolette Brown / Richard Pedley	Sponsor:	Andi Karaboutis - Chief Information and Digital Officer
Utility Service:	IS	Project Manager:	Richard Pedley

3.1 *Background*

A 2017 external audit undertaken by Deloitte' highlighted issues across National Grid's IAM capability and identified several significant deficiencies with the Starter, Mover and Leaver processes, which were seen as fragmented and failing to fully control access to assets and resources. This, in conjunction with the growth in insider threats, points to a clear need for National Grid to design, develop and implement an end to end Identity and Access Management capability that will bring all aspects of IAM under a single point of control.

The project will implement single capability, an Access Control Group (ACG) that will integrate the business and process aspects of IAM.

The IAM – Business Control project will initially gain control of IAM activities and ensure that where access to National Grid resources is granted or removed there are defined and documented processes. As the IAM processes and functions are brought under control there will be an increase in data quality and the predictability of outcomes. The project will progress to delivering process automation. Throughout the project, it will continue to work closely with the SOX remediation project to ensure continuity and a continued focus is applied for the long term. This project will reduce corporate and security risks and resolve identified audit issues with external audit partners and improve user experience.



US Sanction Paper

3.2 Drivers

The key driver is to improve National Grid's access controls to data, assets and devices.

3.3 Project Description

The project will deliver several business and technical changes;

- A Single Point of Accountability – The project will design and establish the ACG capability, it will also define set of standard patterns to allow services to be migrated to the ACG delivery model
- Enduring Governance Model - The governance model established to support the project will endure and continue to ensure that migration and service take on tasks are driven by business priorities and remain aligned to the IAM and National Grid strategies and policies
- Role Based Access Controls (RBAC) – Business positions and supporting roles enabling standard allocation and revocation of system access, based on business function
- Process Maturity - Will be delivered through a re design of the IAM related processes initially focused on the SML processes. The redesign will support the migration to the centralized delivery model and support the identification of processes for automation opportunities
- Immutable Identity – Tooling and processes to establish immutable identities that will allow National Grid to uniquely identify a user irrespective of changes in name, employment status and business entity

3.4 Benefits Summary

- Audits, Controls and Compliance
 - Faster, less labor intensive and less expensive response to audits and reduction in issues raised
- Single Point of Accountability
 - Clear end to end accountability of the IAM will ensure the function is monitored and any issues or deficiencies addressed
- Centralized Delivery
 - Reduced hand offs between organization delivering change in a predictable and repeatable manner resulting in faster delivery and improved data quality



US Sanction Paper

- Improved Security
 - Confidence that the user is known and authorized for the access granted automated de-provisioning to remove access when no longer authorized
- Consistency of Identity across the enterprise
 - Authoritative source provides a single source of the truth
- Business Process Driven
 - Management of identity is driven from a business process perspective
- Data Quality and Productivity
 - Through automated provisioning and self-service access requests the user will obtain access to the required resources when required
- User Satisfaction
 - Self-service access request, authorization and management of certain identity

3.5 Business and Customer Issues

There are no significant business issues beyond what has been described elsewhere.

3.6 Alternatives

Alternative 1: Leave as is

Not recommended. The 2017 External Deloitte audit issue 2155 - Starters, Movers, and Leavers (SML) process review identified issues within five key areas with the most significant issues relating to ensuring appropriate access to financial systems and adherence to SOX standards. Several initiatives have been undertaken to resolve the raised issues. Leaving the situation as is will not resolve these issues and continues to expose National Grid to risks from inadequate access controls to data, assets and devices, and does not ensure the right individuals to access the right resources at the right times for the right reasons.

Alternative 2: Defer Project

Not recommended. Due to the position in respect of audit findings, deferring the IAM project is not a viable option.



US Sanction Paper

3.7 Safety, Environmental and Project Planning Issues

There are no significant issues beyond what has been described elsewhere

3.8 Execution Risk Appraisal

The following Risks have been identified;

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	There is a risk that key stakeholders do not continue to support User Access Reviews for attesting all business systems access concerning both SOX and non-SOX systems.	1	2	2	2	2	Avoid	<ul style="list-style-type: none"> * Outline the role of National Grid teams within the IAM Programme. * Align NG teams to the IAM Strategy and Regulatory Policy. * Identify potential resources in-line with the IAM plans to satisfy key roles. * Engaged the appropriate senior managers to develop an appropriately scoped, funded, governed and designed programme of work via the Identity & Access Management (IAM) programme. * Secure priority through IAM Programme Governance to make resources available. 	Residual Risk remains because of conflicting and constraining priorities across the National Grid business. No change in Probability.	Escalate through IAM Programme Governance
2	The IAM programme needs business involvement to assist with scoping the programme. There is a risk that without business involvement the IAM programme will not deliver the desired state and benefits will be eroded.	2	2	2	4	4	Avoid	<ul style="list-style-type: none"> * Outline the role of National Grid teams within the IAM Programme. * Align NG teams to the IAM Strategy. * Identify potential resources in-line with the IAM plans to satisfy key roles. * Engaged the appropriate senior managers to develop an appropriately scoped, funded, governed and designed programme of work via the Identity & Access Management (IAM) programme. * Secure priority through IAM Programme Governance to make resources available. 	Residual Risk remains because of conflicting and constraining priorities across the National Grid business. No change in Probability.	Escalate through IAM Programme Governance
3	Stakeholders have different ideas of how IAM functions and their team's roles and responsibilities. There is a risk that this may cause conflicting views / divides in the team.	1	1	1	1	1	Avoid	Use the Pex approach to align stakeholders to the challenges of other business / IS areas	Residual Risk remains. No change in Probability.	Conflict resolution tactics to be used in instances of divides.
4	There is a risk that funding for the first phase cannot be secured in good time and resources cannot be recruited as a result delaying the project.	2	1	2	2	4	Avoid	* This is being resolved and the risk has been reduced after several meetings with UK and US senior finance teams.	program is progressing through sanctioning processes	Full sanctioning will be progressed.

3.9 Permitting

N/A



US Sanction Paper

3.10 Investment Recovery

N/A

3.10.1 Investment Recovery and Regulatory Implications

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

3.10.2 Customer Impact

N/A

3.10.3 CIAC / Reimbursement

N/A

3.11 Financial Impact to National Grid

3.11.1 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
INVP5278	Identity & Access Management (IAM) – Business Change Programme	Est Lvl +/- 10%	CapEx	0.000	0.880	4.075	0.898	0.000	0.000	0.000	5.854
			OpEx	0.000	0.831	2.279	0.562	0.000	0.000	0.000	3.673
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	1.712	6.354	1.460	0.000	0.000	0.000	9.526
Total Project Sanction			CapEx	0.000	0.880	4.075	0.898	0.000	0.000	0.000	5.854
			OpEx	0.000	0.831	2.279	0.562	0.000	0.000	0.000	3.673
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	1.712	6.354	1.460	0.000	0.000	0.000	9.526



US Sanction Paper

3.11.2 Project Budget Summary Table

Project Costs Per Business Plan

		Current Planning Horizon (\$M)						
		Prior Yrs (Actual)	Yr. 1 2018/19	Yr. 2 2019/20	Yr. 3 2020/21	Yr. 4 2021/22	Yr. 5 2022/23	Yr. 6 + 2023/24
\$M								Total
CapEx		0.000	0.000	0.000	0.000	0.000	0.000	0.000
OpEx		0.000	0.000	0.000	0.000	0.000	0.000	0.000
Removal		0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan		0.000	0.000	0.000	0.000	0.000	0.000	0.000

Variance (Business Plan-Project Estimate)

		Current Planning Horizon						
		Prior Yrs (Actual)	Yr. 1 2018/19	Yr. 2 2019/20	Yr. 3 2020/21	Yr. 4 2021/22	Yr. 5 2022/23	Yr. 6 + 2023/24
\$M								Total
CapEx		0.000	(0.880)	(4.075)	(0.898)	0.000	0.000	(5.854)
OpEx		0.000	(0.831)	(2.279)	(0.562)	0.000	0.000	(3.673)
Removal		0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan		0.000	(1.712)	(6.354)	(1.460)	0.000	0.000	(9.526)

3.11.3 Cost Assumptions

Project costs have been developed to deliver the indicative scope, the following assumptions have been made;

- The project will run April 2018 through August 2020
- Where possible all development activities will be undertaken by in house resource
- Effort associated with the design and development of enduring assets will be treated as capex expenditure
- All hardware required will be supplied on a lease basis and treated as Opex
- Single day rate used for estimating purpose
- Limited relocation of staff to be undertaken
- No reduction in RTB will be declared prior to the IAM design being defined

3.11.4 Net Present Value / Cost Benefit Analysis

N/A



US Sanction Paper

3.11.4.1 NPV Summary Table

N/A

3.11.4.2 NPV Assumptions and Calculations

N/A

3.11.5 Additional Impacts

N/A

3.12 Statements of Support

3.12.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Business Department	Vicky Higgin	Business Representative
Program Delivery Management	Graham Pool	Head of PDM
Business Partner	Graham Pool	Relationship Manager
Program Delivery Management	Richard Pedley	Program Delivery Director
IS Finance	Michelle Harris	Manager
IS Regulatory	Dan DeMauro	Director
Digital Risk and Security	Elaine Wilson	Director
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Joe Clinchot	Director



US Sanction Paper

3.12.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Regulatory	Harvey, Maria
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Currie, John
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

4 Appendices

4.1 Sanction Request Breakdown by Project

CapEx	INVP5278	Total
CapEx	0.880	0.880
OpEx	0.831	0.831
Removal	0.000	0.000
Total	1.712	1.712

4.2 Other Appendices

N/A



US Sanction Paper

4.3 Project Cost Breakdown

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	VOWD	FTC	FAC=VOWD+FTC	Name of Firm(s) providing
Personnel	NG Resources	0.000	6.697	6.697	
	SDC Time & Materials	0.000	-	-	IBM
		0.000	-	-	WiPro
		0.000	-	-	DXC
		0.000	-	-	Verizon
	SDC Fixed-Price	0.000	-	-	IBM
		0.000	-	-	WiPro
		0.000	-	-	DXC
		0.000	-	-	Verizon
	All other personnel	0.000	-	-	
TOTAL Personnel Costs		-	6.697	6.697	
Hardware	Purchase	0.000	-	-	
	Lease	0.000	0.111	0.111	
Software		0.000	0.227	0.227	
Risk Margin			1.704	1.704	
AFUDC		0.000	0.411	0.411	
Other		0.000	0.377	0.377	
TOTAL Costs		-	9.526	9.526	Should match Financial Summary Total



US Sanction Paper

4.3.1 Benefiting Operating Companies

This investment benefits all operating companies.

Benefiting Operating Companies Table

Operating Company Name	Business Area	State
Niagara Mohawk Power Corp.- Electric Distr.	Electric Distribution	NY
Massachusetts Electric Company	Electric Distribution	MA
KeySpan Energy Delivery New York	Gas Distribution	NY
KeySpan Energy Delivery Long Island	Gas Distribution	NY
Boston Gas Company	Gas Distribution	MA
Narragansett Electric Company	Electric Distribution	RI
Niagara Mohawk Power Corp. - Transmission	Transmission	NY
Niagara Mohawk Power Corp. - Gas	Gas Distribution	NY
New England Power Company – Transmission	Transmission	MA, NH, RI, VT
KeySpan Generation LLC (PSA)	Generation	NY
Narragansett Gas Company	Gas Distribution	RI
Colonial Gas Company	Gas Distribution	MA
Narragansett Electric Company – Transmission	Transmission	RI
National Grid USA Parent	Parent	
Nantucket Electric Company	Electric Distribution	MA
NE Hydro - Trans Electric Co.	Inter Connector	MA, NH
KeySpan Energy Development Corporation	Non-Regulated	NY
KeySpan Port Jefferson Energy Center	Generation	NY
New England Hydro - Trans Corp.	Inter Connector	MA, NH
KeySpan Services Inc.	Service Company	
KeySpan Glenwood Energy Center	Generation	NY
Massachusetts Electric Company – Transmission	Transmission	MA
NG LNG LP Regulated Entity	Gas Distribution	MA, NY, RI
Transgas Inc	Non-Regulated	NY
Keyspan Energy Trading Services	Other	NY
KeySpan Energy Corp.	Service Company	
New England Electric Trans Corp	Inter Connector	MA



US Sanction Paper

4.3.2 IS Ongoing Operational Costs;

The IAM project is focused on gaining control of the IAM environment and will not state any change in Run the Business (RTB) costs as part of this partial sanction investment request. As the project progresses it is expecting that opportunities for process simplification and automation will be identified, developed and implemented delivering a reduction in current RTB. This reduction will be detailed within the full sanction submission targeted for March 2019.

INV ID:						Forecast Date:	
Investment Name:						Go-Live Date:	
Project Manager:					PDM:		
All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total	
		FY 1/1	FY 2/2	FY 3/3	FY 4/4		
Last Sanctioned Net Impact to RTB							
Last Sanction IS Net Impact to RTB							-
Last Sanction Business Net Impact to RTB							-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB							
IS Investment Plan Net Impact to RTB							-
Business Budgeted Net Impact to RTB							-
Currently Forecasted Net Impact to RTB							
IS Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-	-
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB							
IS Investment Plan Net Impact to RTB Variance	-	-	-	-	-	-	-
Business Budgeted Net Impact to RTB Variance	-	-	-	-	-	-	-

4.4 NPV Summary (if applicable)

N/A

4.5 Customer Outreach Plan

N/A



US Sanction Paper

Title:	Network Modernization	Sanction Paper #:	USSC-18-313 v2
Project #:	INVP 5309 Capex: S007971	Sanction Type:	Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	3/13/2019
Author:	Morgan Matthews / Andrew Yee	Sponsor:	Barry Sheils VP IT Infrastructure & Operations
Utility Service:	IT	Project Manager:	Andrew Costello

1 **Executive Summary**

1.1 **Sanctioning Summary**

This paper requests sanction of INVP 5309 in the amount of \$7.911M with a tolerance of +/- 10 for the purposes of Development and Implementation.

This sanction amount is \$7.911M broken down into:

\$ 5.655M Capex
\$ 2.256M Opex
\$ 0.000M Removal

1.2 **Project Summary**

The Network Modernization Program has identified a series of projects that will modernize the National Grid network (replacing outdated, aged and unsupported network equipment and streamlining processes). The paper request funds for the following initiatives listed under the Program INVP 5309 - Network Modernization:

- 5310: Governance
 - Video Conferencing (EOS Maintenance Model / Webex Video Bridging and Tandberg Replacement)
 - WAAS (Wide Area Application Service) Decommissioning
 - SRST (Survivable Remote Site Telephony) Decommissioning
- 5311: InfoBlox / IP Platform Management
- 5312: Ethernet/SD-WAN (Software Defined-Wide Area Network) Upgrade
- 5313: Zscaler Cloud Security Gateway
- 5314: eBond/ Non-Standard Service Request (NSSR)/Service Catalog



US Sanction Paper

1.3 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
INVP 5309 Capex: S007971		Network Modernization	7.911

1.4 Associated Projects

N/A

1.5 Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Sanction Type	Potential Investment Tolerance
10/16/18	USSC	\$2.991M	\$4.844	Partial	25%

1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
December 2019	Project Closure Sanction

1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory <input type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input checked="" type="radio"/> Other	This Program is to modernize the National Grid Network.



US Sanction Paper

1.8 Asset Management Risk Score

Asset Management Risk Score: 41

Primary Risk Score Driver: (Policy Driven Projects Only)

☒ Reliability ☐ Environment ☐ Health & Safety ☐ Not Policy Driven

1.9 Complexity Level

☐ High Complexity ☒ Medium Complexity ☐ Low Complexity ☐ N/A

Complexity Score: 22

1.10 Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project:

☐ Yes ☒ No

1.11 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
IT Investment Plan FY20 - 24	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	0.412M

1.12 If cost > approved Business Plan how will this be funded?

Re-allocation of budget within the IT business has been managed to meet jurisdictional budgetary, statutory and regulatory requirements.



US Sanction Paper

1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2019/20	Yr. 2 2020/21	Yr. 3 2021/22	Yr. 4 2022/23	Yr. 5 2023/24	Yr. 6 + 2024/25	
CapEx	4.635	1.021	0.000	0.000	0.000	0.000	0.000	5.655
OpEx	1.856	0.400	0.000	0.000	0.000	0.000	0.000	2.256
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	6.491	1.420	0.000	0.000	0.000	0.000	0.000	7.911

1.14 Key Milestones

Milestone	Target Date: (Month Year)
Start Up	September 2018
Project Sanction	March 2019
Begin Development and Implementation	January 2019
Move to Production / Last Go Live	September 2019
Project Closure	December 2019

1.15 Resources, Operations and Procurement

Resource Sourcing			
Engineering & Design Resources to be provided	<input checked="" type="checkbox"/> Internal	<input type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Operational Impact			
Outage impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Procurement Impact			
Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green



US Sanction Paper

1.16 Key Issues (include mitigation of Red or Amber Resources)

N/A

1.17 Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative

1.18 List References

N/A



US Sanction Paper

2 Decisions

The US Sanctioning Committee (USSC) at a meeting held on 03/13/2019:

- (a) APPROVED this paper and the investment of \$7.911M and a tolerance of +/- 10% for the purposes of Development and Implementation.
- (b) APPROVED the run-the-business (RTB) of \$0.032M for the first year, \$1.989 for the second year, and \$2.472 (per annum) for 3 years.
- (c) NOTED that Andrew Costello is the Project Manager and has the approved financial delegation.

Signature.....Date.....

David H. Campbell, Vice President ServCo Business Partnering, USSC Chair